Sec 2 Parents' Seminar **Additional Mathematics**



(4144444)











CRESCENT GIRLS' SCHOOL

Importance of Mathematics

- Mathematics underpins innovation and progress across disciplines.
- It helps model real-world phenomena (e.g. disease outbreaks, population trends).
- Essential for **designing products** and systems (e.g. mobile games, autonomous vehicles).
- Boosts productivity, decision-making, and security (e.g. analytics, encryption).



Importance of Mathematics



Top 10 skills of 2025





- Problem-solving
- Self-management
- Working with people
- Technology use and development







Developing our students to be confident and creative problem-solvers

CGS Math Dept

Secondary Mathematics Curriculum

- **Students vary** in their needs and attitudes toward mathematics:
 - For some, math is a **practical tool** for daily life, with formal learning ending here.
 - Others will **pursue further studies**, especially in **STEM fields**, requiring deeper math understanding.
- Learning advanced mathematics early benefits those aiming for STEM careers.



Secondary Mathematics Curriculum

Goals of Secondary Mathematics Education:

Equip all students with the **mathematical mastery** needed for everyday life.

Support interested and capable students to **deepen their learning** for future academic and career pursuits.



Secondary Mathematics Curriculum

4 syllabuses in the Secondary Mathematics Curriculum available in CGS:

- G3 Mathematics
- G2 Mathematics
- G3 Additional Mathematics
- G2 Additional Mathematics



G2/G3 Additional Mathematics

Aims to enable students who have an aptitude and interest in mathematics to:

• acquire mathematical concepts and skills for **higher studies** in mathematics and to support learning in the other subjects, with emphasis in the sciences, but not limited to the sciences;

 develop thinking, reasoning, communication, application and metacognitive skills through a mathematical approach to problem solving;



G2/G3 Additional Mathematics

Aims to enable students who have an aptitude and interest in mathematics to:

 connect ideas within mathematics and between mathematics and the sciences through applications of mathematics; and

• appreciate the abstract nature and power of mathematics



G2/G3 Additional Mathematics

Syllabus Organisation

Concept and Skills			
Algebra	Geometry and Trigonometry	Calculus	
Learning Experiences (Processes, Metacognition and Attitudes)			



New Assessment Trends









New Assessment Trends

	Past	Current
Question Types	FindStateCalculateEvaluate	 Determine, with explanations; Justify your answers/decisions with calculations
Focus of curriculum	Skills and concepts; less explicit on processes	Skills, concepts <u>and processes</u> (math reasoning)
Interdisciplinary Connections	Occasionally	Usually (with Science)
Infusion of mathematical modelling	No	Yes



G3 Additional Mathematics (Code: 4049)

Paper	Duration	Description	Marks	Weighting
1	2 h 15 min	There will be 12 – 14 questions of varying marks and lengths, up to 10 marks per question. Candidates are required to answer all questions.	90	50%
2	2 h 15 min	There will be 9 – 11 questions of varying marks and lengths, up to 12 marks per question. Candidates are required to answer all questions.	90	50%



G2 Additional Mathematics (Code: 4051)

Paper	Duration	Description	Marks	Weighting
1	1 h 45 min	There will be 13 – 15 questions of varying marks and lengths. Candidates are required to answer all questions.	70	50%
2	1 h 45 min	There will be 8 – 10 questions of varying marks and lengths. Candidates are required to answer all questions.	70	50%



Post-Secondary Options

Junior College

If you want to take H2 Mathematics or H2 Further Mathematics, Additional Mathematics is generally a prerequisite because H2 Mathematics builds on Additional Mathematics concepts.

Polytechnic

Some engineering, IT, and science-related courses may require or strongly prefer Additional Mathematics.



Possible Career Paths

STEM	Finance & Business	Technology & Innovation	Others
Computer Scientist or Programmer	Economist	Al / Machine Learning Specialist	Pilot – strong math skills for navigation
Data Scientist or Analyst	Accountant	Cryptographer	Game Developer – applied math in programming
Engineer	Quantitative Analyst	Software Developer	Urban Planner – statistics & mathematical modelling
Architect	Investment Banker		



Considerations to make...

Before choosing the subject, ask yourself...

- Am I **willing to invest the time and effort** needed to take on Additional Mathematics?
- Am I coping well with Mathematics at my current level?
- Am I curious and motivated to explore more complex and abstract ideas?







Thank You

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